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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,541	12/28/2005	Francesco Pessolano	NL030781	3960

24737 7590 06/09/2009

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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EXAMINER	
DUNN, DARRIN D	

ART UNIT	PAPER NUMBER
2121	

MAIL DATE	DELIVERY MODE
06/09/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/562,541	PESSOLANO ET AL.	
	Examiner	Art Unit	
	DARRIN DUNN	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 May 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,7,8,10,11 and 17-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,7-8, 10-11, 17-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The Office Action is responsive to the communication filed in 05/22/09.

2. Claims 1, 7-8, 10-11, 17-26 are pending.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1,7-8, 11, 17-19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirano (JP2001056143) in view over Sylliassen (USPN 20020135474) and in further view over Abe et al. (USPN 20040155875)

6. As per claim 1, Hirano teaches a method of controlling an electronic device, comprising the steps of:

detecting brainwaves of a user ([0005] e.g., electroencephalograph);

However, Hirano does not teach in response to detecting brainwaves of a user, one of reducing a quality of output by the electronic device and/or reducing a size of an image output by the electronic device. Sylliassen teaches reducing a quality of an image output by the electronic device ([0011] e.g., turning off the television results is a reduction of the quality of the image output, i.e., image on vs. image off). More importantly, Sylliassen teaches the supporting motivation for conserving power when a user falls asleep, where the power conservation is illustrated via image size and quality reduction, see below)

Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to reduce the quality of an image output via turning the television off when the user falls asleep. Hirano teaches monitoring brainwaves so as to facilitate a particular sleep state and incidentally conserves power in the process by reducing the device power output. Sylliassen teaches conserving power by turning the television off when the user falls asleep ([0003]). Therefore, it would have been obvious that turning the television off results in a 100% reduction in image quality and by doing so, energy is conserved based on monitoring brainwaves.

However, Hirano, as modified, does not teach reducing a size of an image output by the electronic device. Abe teaches both a) reducing the image quality and b) the size of the image in a power saving mode ([ABSTRACT], [Figure 7]).

Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to provide a power saving mode when the user falls asleep, wherein the mode includes reducing the size and/or quality of an image, as taught by Abe et al. Hirano teaches determining when a user falls asleep and further controls the output of an electronic device. Sylliassen teaches turning off a television when it has been determined the user and/or users

(e.g., children) may have fallen asleep to conserver power. Abe et al. teaches a television that conserves power via presenting an image with less deterioration and/or size than the normal image. In effect, it would have been obvious to provide a power saving operation opposed to turning off the electronic device when it has been determined the user has fallen asleep, via the user brainwaves, as a taught by Hirano. The power saving operation reduces the image size and/or quality to save power opposed to turning off the device.

in response to detecting delta waves or a REM state, switching the electronic device to one of off and a hibernation mode of reduced power consumption ([0002], [0006], [0014] e.g., a delta wave is correlated with deep sleep. When a user's sleep deepens to this state, the air conditioning and/or television can be turned OFF. As applied to Abe, a power saving mode is employed, further including lessening the image size and/or quality responsive to detecting a particular brainwave)

7. As per claim 7, Hirano teaches a computer readable medium which stores a computer program which controls a programmable device to carry out a method as claimed in claim 1 ([0005])

8. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hirano (JP2001056143) in view over Sylliassen (USPN 20020135474) and in further view over Abe et al. (USPN 20040155875) and in further view over Colmenarez et al. (USPN 2003/0052789)

9. As per claim 26, Hirano, as modified, teaches detecting brainwaves of a user where the brainwaves further include a delta ([0002-0006]) but does not teach a plurality of users and switching to one of the off and hibernation modes in response to detecting the delta waves of all the users.

Sylliassen teaches a plurality of users ([0004] e.g., children) and switching the television to an off state when a user has fallen asleep. Abe further teaches the application of a hibernation, i.e., power saving mode, in response to when the user has fallen asleep. Colmenarez et al. further teaches detecting when a user in a room falls asleep ([0017])

Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to apply the teaching of Hirano, as modified by Sylliassen, as modified by Abe, to be applicable to a plurality of users. The motivation is to not turn off the television when one of a plurality of users has fallen asleep when others are clearly watching the television. It is obvious to discern which user has fallen asleep and which user has not fallen asleep, via measuring brainwaves, such that those users who remain awake will not have to turn on the television when an adjacent user happens to fall asleep.

10. As per claim 8, Hirano teaches an electronic device, comprising:

a receiver which receives, from a detector, a detection signal indicative of a sleep state of a user ([0005] e.g., receiver – A/D: detector – electroencephalograph); and

a control unit ([0005] e.g., microprocessor) which:

via the receiver, receives to receive the detection signal from the detector ([0005] e.g., input means is described]), determines whether, based on the received detection signal, the user is asleep, probably asleep, or awake ([0005-0008] e.g., an analysis procedure is outlined to determine theta (e.g., probably asleep) |delta (deep sleep), in response to determining that the user is probably asleep (e.g., theta detection), controls the electronic device to at least one of reduce a volume of sound output by the electronic device ([0013-14] e.g., volume is reduced | whizzing sound is reduced), reduce a quality of sound output by the electronic device, reduce a

size of an image output by the electronic device, and reduce a quality of an image output by the electronic device, and

However, Hirano does not teach one of reducing a quality of output by the electronic device and/or reducing a size of an image output by the electronic device. Sylliassen teaches reducing a quality of an image output by the electronic device ([0011] e.g., turning off the television results in a reduction of the quality of the image output, i.e., on vs. off). Furthermore, Sylliassen teaches the supporting motivation for conserving power when a user falls asleep, where the power conservation is illustrated via image size and quality reduction, see below)

Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to reduce the quality of an image output via turning the television off when the user falls asleep. Hirano teaches monitoring brainwaves so as to facilitate a particular sleep state and incidentally conserves power in the process by reducing the device power output. Sylliassen teaches conserving power by turning the television off when the user falls asleep ([0003]). Therefore, it would have been obvious that turning the television off results in a 100% reduction in image quality and by doing so, energy is conserved.

However, Hirano, as modified, does not teach reducing a size of an image output by the electronic device. Abe teaches both a) reducing the image quality and b) the size of the image in a power saving mode ([ABSTRACT], [Figure 7]).

Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to provide a power saving mode when the user falls asleep, wherein the mode includes reducing the size and/or quality of an image, as taught by Abe et al. Hirano teaches determining when a user falls asleep and further controls the output of an electronic device.

Sylliassen teaches turning off a television when it has been determined the user and/or users (e.g., children) may have fallen asleep to conserver power. Abe et al. teaches a television that conserves power via presenting an image with less deterioration and/or size than the normal image. In effect, it would have been obvious to provide a power saving operation opposed to turning off the electronic device when it has been determined the user has fallen asleep, via the user brainwaves, as a taught by Hirano.

in response to determining that the user is asleep switches the electronic device to a reduced power consumption mode (e.g., as per Abe, a power saving mode is employed. As modified, when a user is determined to have fallen asleep, the television is either turned off or placed into a power saving mode. The power saving mode includes presenting an image of lesser quality and/or size as to effectuate power savings)

11. As per claim 11, Hirano teaches the electronic device as claimed in claim 8, further including:

an output means which generates at least one of an audio signal and a display signal ([0014] e.g., the system is applicable to a stereo and therefore an audio signal is controlled and/or is equally applicable to a television)

12. As per claim 17, Hirano teaches an electronic device including a processor programmed to perform the steps claimed in claim 1 ([0005])

13. As per claim 18, Hirano, as modified, teaches the electronic device as claimed in claim 8, further including:

a brainwave detector which measures brainwaves of the user and generates the detection signal based on the detected brainwaves ([0005] e.g. an electroencephalograph) and the control

unit ([0005] e.g., microprocessor) reduces the sound volume ([0013-14] e.g., reducing whizzing) or quality or the image size or quality in response to a detection signal indicative of a first detected brainwave state (e.g., theta waves) and switches to the reduced power consumption mode (e.g. OFF (100% power reduced) vs. ON vs. reduced air flow) in response to a detection signal indicative of a second brainwave state (e.g., delta waves), the first brainwave state being different from the second brainwave state (e.g., delta vs. theta).

(e.g., as modified, based on detecting a brainwave to ascertain sleep, a device (e.g., television) will enter a power saving mode. Although Hirano does not specifically teach a power saving mode, Sylliassen provides supporting motivation for saving power when a user falls asleep. Abe futher expands that power saving may occur when a television is turned off or a power saving mode is employed. The power saving mode employs an image size/quality reduction)

14. As per claim 19, Hirano teaches an electronic device comprising:

a brainwave detector which measures brainwaves of a user of the electronic device and generates a detection signal based on the detected brainwaves ([0003-0005] e.g., an electroencephalograph is employed to detect brainwaves), ;

a receiver for receiving the detection signal from the brainwave detector ([0005] e.g., A/D), and

control unit ([0005] e.g., microprocessor) which:

receives the detection signal from the receiver, determines whether the user is probably asleep by identifying from the detection signal a first brainwave pattern that is indicative of at least one of relaxed with eyes closed, sleepy, already sleeping, or in a sleep transition ([0005-0006] e.g., theta waves are detected, i.e., sleepy),

determines whether the user is asleep by identifying a second brainwave pattern indicative of the user being in a deep sleep or REM sleep ([0005-0006] e.g., delta waves),

However, Hirano does not teach one of reducing a quality of output by the electronic device and/or reducing a size of an image output by the electronic device. Sylliassen teaches reducing a quality of an image output by the electronic device ([0011] e.g., turning off the television results in a reduction of the quality of the image output, i.e., on vs. off). Furthermore, Sylliassen teaches the supporting motivation for conserving power when a user falls asleep, where the power conservation is illustrated via image size and quality reduction, see below)

Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to reduce the quality of an image output via turning the television off when the user falls asleep. Hirano teaches monitoring brainwaves so as to facilitate a particular sleep state and incidentally conserves power in the process by reducing the device power output. Sylliassen teaches conserving power by turning the television off when the user falls asleep ([0003]). Therefore, it would have been obvious that turning the television off results in a 100% reduction in image quality and by doing so, energy is conserved.

However, Hirano, as modified, does not teach reducing a size of an image output by the electronic device. Abe teaches both a) reducing the image quality and b) the size of the image in a power saving mode ([ABSTRACT], [Figure 7]).

Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to provide a power saving mode when the user falls asleep, wherein the mode includes reducing the size and/or quality of an image, as taught by Abe et al. Hirano teaches determining when a user falls asleep and further controls the output of an electronic device.

Sylliassen teaches turning off a television when it has been determined the user and/or users (e.g., children) may have fallen asleep to conserver power. Abe et al. teaches a television that conserves power via presenting an image with less deterioration and/or size than the normal image. In effect, it would have been obvious to provide a power saving operation opposed to turning off the electronic device when it has been determined the user has fallen asleep, via the user brainwaves, as a taught by Hirano.

switches the electronic device to a mode of reduced power consumption ([0002], [0006], [0014] e.g., a delta wave is correlated with deep sleep. When a user's sleep deepens to this state, the air conditioning can be turned OFF. As applied to Abe, a power saving mode is employed, further including lessening the image size and/or quality)

15. As per claim 21, Hirano, as modified, teaches the electronic device as claimed in claim 19, wherein the control unit determines whether the user is probably asleep based on whether the brainwave detection signal is indicative of theta or alpha waves ([0005-0008], [0013-14]) and determines whether the user is asleep based on the brainwave detection signal being indicative of delta waves or REM sleep ([0005-0008, [0013-14])

15. Claims 10,20, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirano (JP2001056143) in view over Sylliassen (USPN 20020135474) and in further view over Abe et al. (USPN 20040155875) and in further view over Ogino (USPN 5479939)

16. As per claim 10, Hirano does not teach a motion detector. Ogino teaches a motion detector ([Figure 3-element 4])

Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to modify Hirano to include a motion detector. Hirano pertains to detecting a sleep state of a user to control the output of an electronic device. Ogino teaches a motion detector to determine whether a user is asleep to control an electronic device. Therefore, it would have been obvious to include a motion detector as a means of further ascertaining the sleep state of a user.

17. As per claim 20, Ogino teaches a detector which outputs a second detection signal based on detected motion ([Figure 3], [COL 1 lines 20-25], [COL 2 lines 32-40]); and,

wherein the control unit determines whether the user is probably asleep based on the motion detection signal ([Figure 5])], and

determines whether the user is asleep based on the motion detection signal ([Figure 5 – probability of sleep as a function of duration of quiet sleep state], [COL 2 lines 38-40])

However, Hirano does not teach that a user is probably asleep or asleep based on both a brainwave detection signal and a motion detection signal. Hirano teaches that both a deep sleep and near sleep stage are detected via brainwaves ([0005], [0013-14] e.g., a control unit is provided for that measures the brainwaves of the user. The theta wave is interpreted as a shallow sleep state and therefore it is more likely than not the user is transitioning into a deeper sleep state. A delta wave is measured indicating a deeper sleep) Ogino teaches that a user may be asleep or sleeping based upon measuring user motion over time ([Figure 5] e.g., a low probability of sleep (< 60%) corresponds to probably asleep whereas a high probability (>80 %) corresponds to being asleep.

Therefore, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to determine whether the user is probably asleep and actually sleeping based on

both motion and brainwaves. In effect, using both motion and brainwave detection signals comprise multiple ways of ascertaining a particular sleep state of a user. Since measuring both motion and brainwaves provides a more detailed understanding of a user's particular state, it would have been obvious to implement both to understand a user's behavior and particular sleep patterns.

18. As per claim 23, Hirano teaches at least one of reducing a volume of sound output by the electronic device, reducing a quality of sound output by the electronic device, reducing a size of an image output by the electronic device, and reducing a quality of an image output by the electronic device ([0013-14]). Hirano does not teaches determining whether movement occurs for a predetermined time and in response to no movement being detected for a predetermined time, reducing the output level of an electronic device.

Ogino teaches measuring movement of a person for a predetermined time ([ABSTRACT], [Figure 4], [Figure 5] [COL 7 lines 20-42]). Ogino teaches the probability of a user being asleep based on motion.

Thus, at the time the invention was made, one of ordinary skill in the art would have motivation to measure motion for a predetermined time and reduce the output power level of a device. Hirano teaches reducing the output level of a device ([0013-14] via measuring brainwaves to reduce the amount of external noise to accommodate a shallow sleep state (theta). Ogino teaches that motion correlates to various sleep states (e.g., probability of sleep). Since a user is more likely to move as to adjust themselves for greater comfort prior to entering a deep sleep state, it would have been obvious to reduce the sound output, as taught by Hirano to facilitate a deeper sleep state by reducing external noise. Moreover, rough body movement, as

taught by Ogino, is not indicative of a peaceful state. Thus, by reducing sound output, as taught by Hirano, a user is more apt to enter a quiet state by reducing the level of distracting noises (e.g., whizzing sounds | stereo output levels) The purpose of reducing external disturbances is a way of facilitating the transition of a shallow sleep state to a deeper sleep state. Moreover, in combination with Hirano, detecting brainwaves is a means of verifying that the user is entering a deeper sleep state and would not inadvertently lower the volume when the user happens to be motionless but not attempting to sleep.

19. Claims 22, 24 ,and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirano (JP2001056143) in view over Sylliassen (USPN 20020135474) and in further view over Abe et al. (USPN 20040155875) and in further view Lidow (USPN 4228806)

20. As per claim 22, Hirano does not teach a pressure sensor. Lidow teaches a pressure sensors to detect a physiological state ([COL 5 lines 39-45], [COL 1 lines 10-20] e.g., blood pressure is a physiological state and therefore obvious to use a sensor)

Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to measure the blood pressure of a person as a means of detecting a sleep state. Hirano teaches detecting a sleep state via brainwaves. Lidow teaches measuring brainwaves in addition to blood pressure to ascertain a sleep state. Therefore, it would have been obvious to further measure the blood pressure via a sensor to further ascertain whether a user is asleep.

21. As per claims 24 and 25, Hirano teaches the electronic device as claimed in claim 8 with the exception that an REM sleep state is not measured. Hirano teaches the following limitations:

a brainwave detector which details and differentiates among theta

waves, delta waves ([0002-0008]); and

wherein the control unit controls the electronic device to:

in response to the detector detecting the theta waves, at least one of reduce the volume of the sound output by the electronic device, reduce the quality of the sound output by the electronic device, reduce the size of the image output by the electronic device ([0013-14]), and reduce the quality of the image output by the electronic device; and

in response to the detector detecting at least one of the delta waves and the REM sleep state, switching the electronic device to the reduced power consumption mode ([0013-0014] e.g., OFF, i.e., 100% reduced power vs. a power ON mode or an intermediary mode of reduced volume) Lidow teaches detecting an REM sleep state ([COL 1 lines 5-30])

Therefore, it would have been obvious to measure REM (rapid eye movement) to detect a deep sleep state of a user. Hirano teaches measuring delta waves to detect a deep sleep state. Lidow teaches detecting REM to detect a sleep state. Since there are various states of sleep, it would have been obvious to detect all states to more accurately control an electronic device.

(e.g., supra claim 8 discussion as it is applicable to image size and quality in the context of power savings and a user's sleep state)

Response to Arguments

22. Applicant's arguments with respect to claims 1, 7-8, 10-11, 17-26 have been considered but are moot in view of the new ground(s) of rejection.

The Examiner has structured the rejection to illustrate the following:

A] Hirano employs a means to sense various brainwaves to detect a sleep state and control an output device in response to detecting the brainwaves. However, although an incidental benefit of power saving is achieved, Hirano does not expressly define this result

B] Sylliassen teaches the need to conserve power of an electronic device when the user has been determined to have fallen asleep. As modified by Hirano, in response to detecting a particular brainwave, the television is turned off as to effectuate a power savings. However, Hirano does not expand the concept of power saving to employing a power saving mode applied to an image output.

C] Abe employs a power saving mode as applied to an image output. As modified, either the television may be turned off or a power saving mode is implemented in response to detecting a brainwave pattern of a user.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DARRIN DUNN whose telephone number is (571)270-1645. The examiner can normally be reached on EST:M-R(8:00-5:00) 9/5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DD/
06-05-09

/Albert DeCady/
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